Natural Phenomena Hazards

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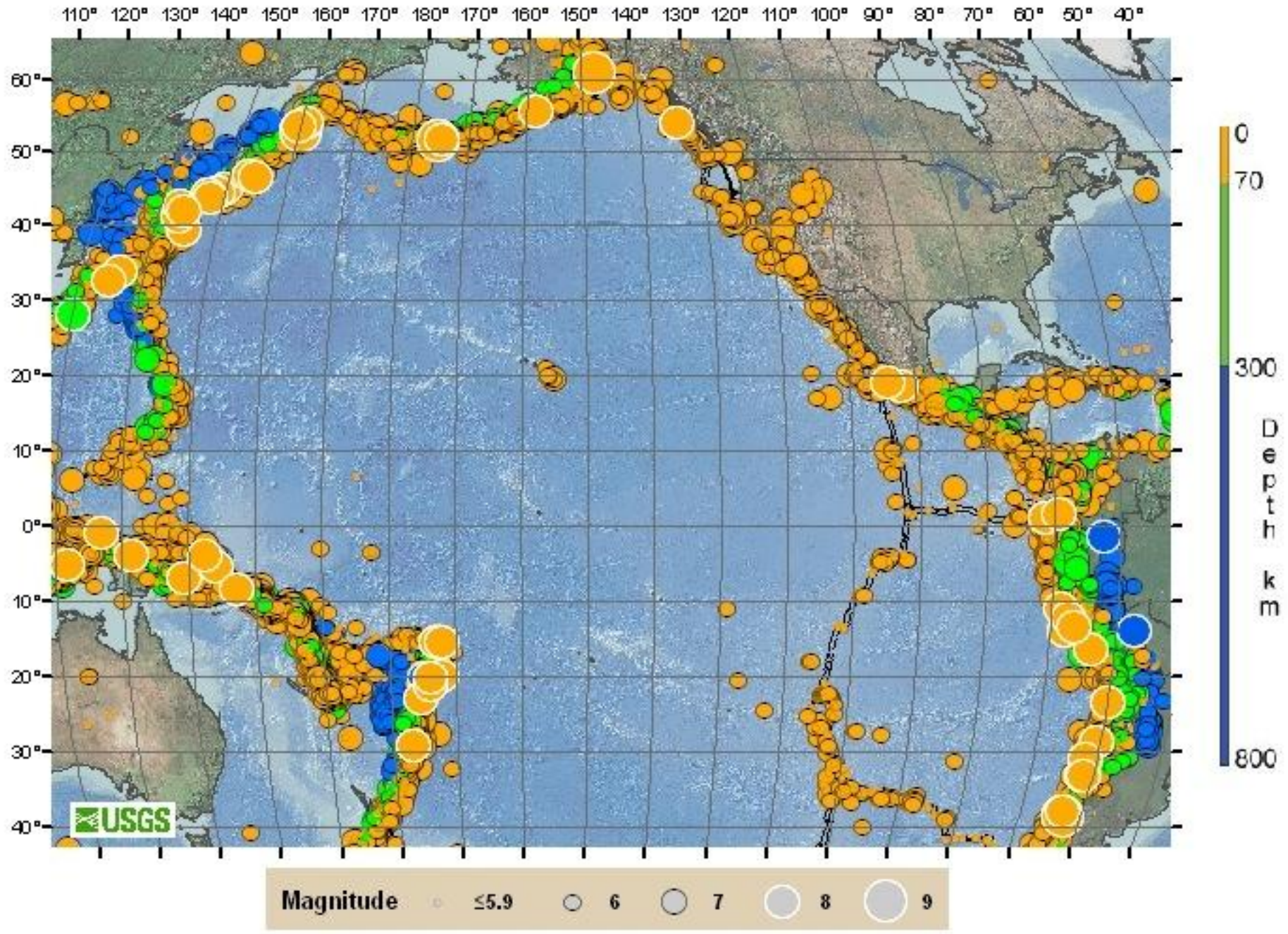
Natural Phenomena Hazards

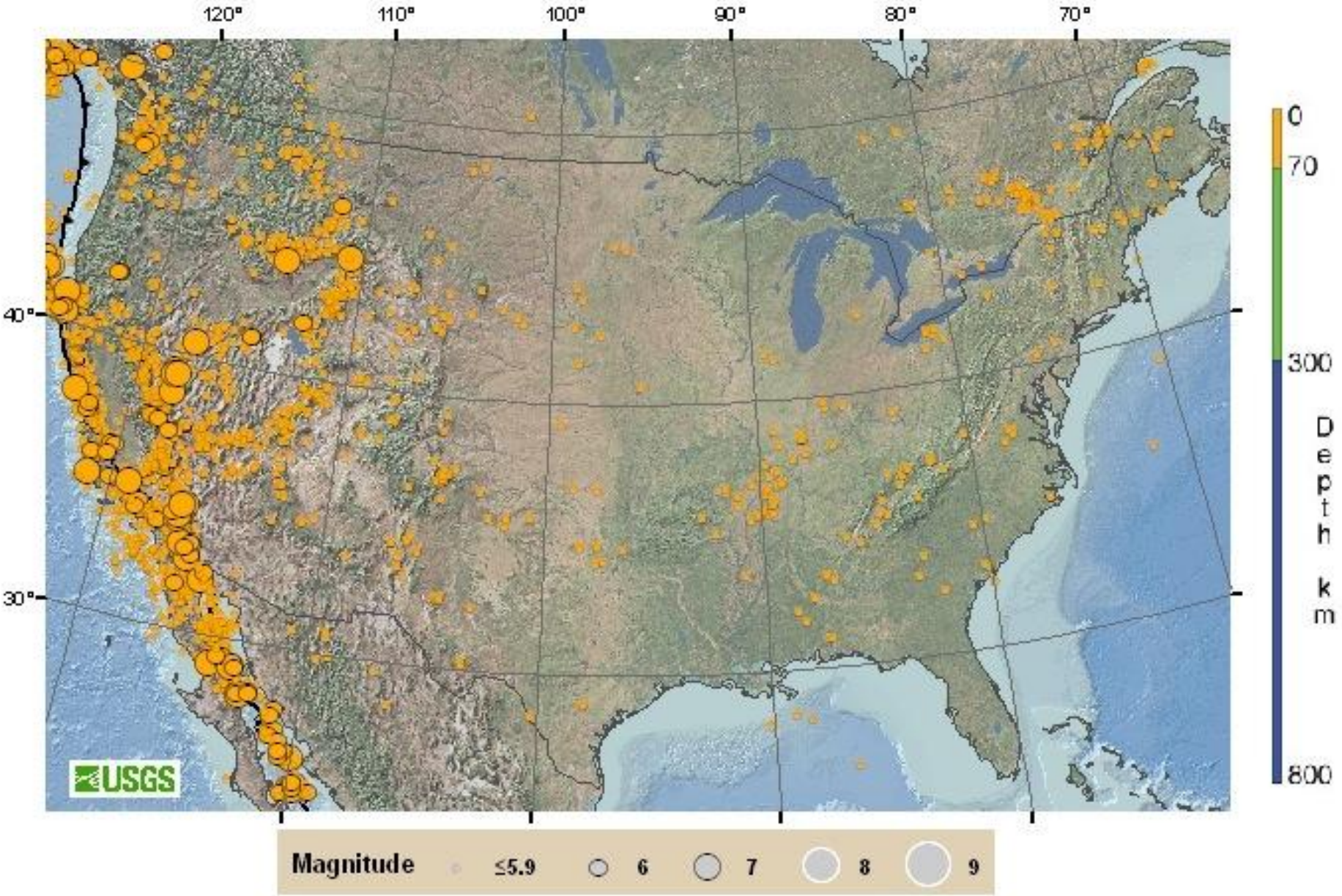
Sponsors/Facilitators:

- Richard H. Lagdon, Jr., DOE Chief of Nuclear Safety
- Stephen M. McDuffie, DOE Office of the Chief of Nuclear Safety
- Dr. Kevin J. Coppersmith

Agenda

- DOE Natural Phenomena Hazard Topics:
- DOE-STD-1020 Update
- 10-Year Update Criteria
- Status of Site 10-Year Updates
- Central and Eastern United States Seismic Source Characterization (CEUS-SSC) Project Status and Its Role in 10-Year Probabilistic Seismic Hazard Analysis (PSHA) Updates – Larry Salomone, SRNS
- SASSI Code Concerns
- Vulnerabilities and beyond design basis events


110° 120° 130° 140° 150° 160° 170° 180° 170° 160° 150° 140° 130° 120° 110° 100° 90° 80° 70° 60° 50° 40°
60° 50° 40° 30° 20° 10° 0° 10° 20° 30° 40°
USGS
0
70
300
800
Depth km
Magnitude ≤5.9 6 7 8 9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40°
30°
USGS
0
70
300
Depth km
800
Magnitude
≤5.9
6
7
8
9

Fukushima Plant following Quake

Maximum Core Uncovery Time Limit

NOTE 6

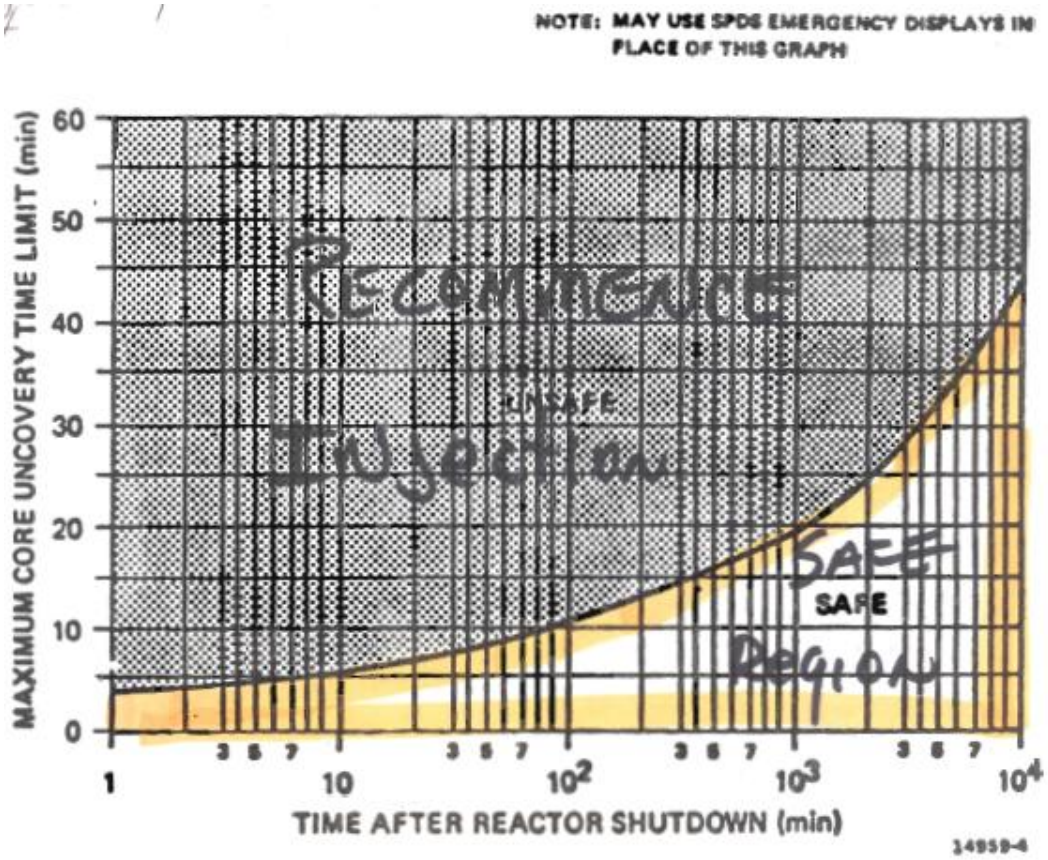
MAXIMUM CORE UNCOVERY TIME LIMIT (MCUTL)

TIME AFTER REACTOR SHUTDOWN	MAXIMUM ALLOWABLE CORE UNCOVERY TIME
1 MIN.	3 MIN. 30 SEC.
5 MIN.	4 MIN. 49 SEC.
10 MIN.	5 MIN. 33 SEC.
15 MIN.	6 MIN. 6 SEC.
20 MIN.	6 MIN. 34 SEC.
30 MIN.	7 MIN. 25 SEC.
40 MIN.	8 MIN. 7 SEC.
50 MIN.	8 MIN. 45 SEC.
60 MIN.	9 MIN. 18 SEC.
80 MIN.	10 MIN. 13 SEC.
100 MIN.	10 MIN. 58 SEC.
600 MIN.	16 MIN. 54 SEC.
1000 MIN.	19 MIN. 19 SEC.
3000 MIN.	27 MIN. 12 SEC.
6000 MIN.	35 MIN. 16 SEC.

Allows RPV level lowering below TAF for any period of time less than the limit without exceeding 2200°F

Function of decay heat and time since shutdown

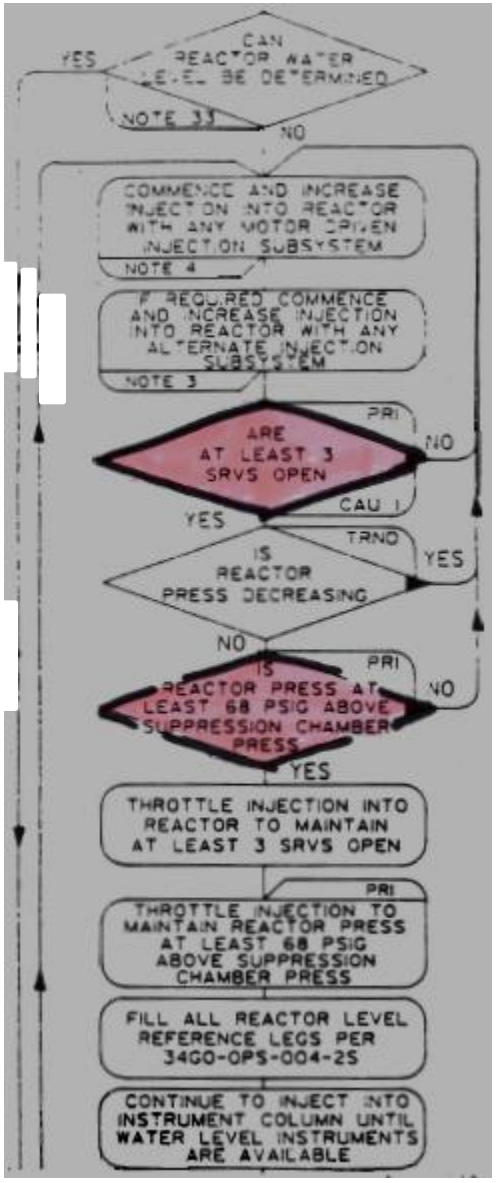
Utilized during RPV flooding contingency if level indication was lost



MAXIMUM CORE UNCOVERY TIME LIMIT
UNIT 2

Minimum RPV flooding pressure (MRFP)

- Two conditions:
  - At least 3 SRVs open
  - Reactor pressure 68 psig greater than suppression chamber pressure
- Ensures sufficient liquid injection into the RPV to preclude SRV cycling and to flood the RPV to the elevation of the main steam lines
- Used during RPV flooding
  - All rods past 02
  - Reactor SD and no boron injected



Challenges for Today

- Understand current efforts in NPH and their significance
- Promote thinking and questioning in fostering site improvements
- Develop a list of actions to promote continuous improvement
- Inputs to develop relevant agenda for NPH workshop later this year